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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/735,847	12/16/2003	Pertrus Rutgerus Bartray	081468-0307226	3169
909	7590	07/14/2005	EXAMINER	
PILLSBURY WINTHROP SHAW PITTMAN, LLP			NGUYEN, HUNG	
P.O. BOX 10500			ART UNIT	
MCLEAN, VA 22102			PAPER NUMBER	
			2851	

DATE MAILED: 07/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/735,847

Applicant(s)

BARTRAY ET AL.

Examiner

Hung Henry V. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 April 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 April 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Prosecution Status

1. This office action is non-final rejection because the Examiner has changed the art and advanced new arguments.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 20-22 are rejected under 35 U.S.C. 102(e) as being anticipated by Harpaz (U.S. 2004/0204777 A1).

With respect to claims 20-22, Harpaz discloses a reference frame used in a lithographic apparatus (see section [004]) comprising all limitations of the instant claims such as: the reference frame (10) comprising a material (granite) having a coefficient of thermal expansion of greater than about $2.9 \times 10^{-6}/K$ and having a specific heat of greater than about $600 J/(kg.K)$. For example, please see table 1 of the specification on page 12, the coefficient of thermal expansion of Granite is about $5 \times 10^{-6}/K$ and the specific heat is $820 J/(kgK)$.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-10, 12-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shima (U.S.Pat. 6,822,727) in view of Harpaz (US 2004/0204777 A1).

As to claims 1-10, 12-23, Shima et al discloses an exposure apparatus for transferring a predetermined pattern formed on a mask onto a substrate and comprising substantially all of the limitations of the instant claims including: an illumination system (1-3) for providing a beam of radiation; a supporting structure (6) for supporting the mask (4) ; a substrate support (9) for supporting the substrate (8) ; a projection system (7) for projecting the patterned beam onto the substrate and a reference frame (FR) for providing a reference surface with respect to which a position of at least one of the substrate and the mask prior to exposure. Shima does not specifically disclose the reference frame made of a material having specific coefficient of thermal expansion, or a specific heat, and specific thermal conductivity as specified in the instant claims. Harpaz discloses a high precision position control apparatus for used in an exposure apparatus comprising reference frame (10) having a material (granite) having a coefficient of thermal expansion of greater than about $2.9 \times 10^{-6}/K$ and having a specific heat of greater than about 600 J/(kg.K). It would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the teachings of Shima and Harpaz to obtain the invention as specified in the instant claims. It would have been obvious to a skilled artisan to employ suitable

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material having specific coefficient of thermal expansion, or a specific heat, and specific thermal conductivity as specified in the instant claims, as suggested by Harpaz to make the reference frame of Harpaz, for the purpose of preventing thermal expansion of the reference frame and improving the accuracy of the measuring system.

6. Claim 11 is rejected under 35 U.S.C. 103(a) being unpatentable over Shima (U.S.Pat. 6,822,727) in view of Harpaz (U.S. 2004/0204777 A1) and further in view of Shiraishi (U.S.Pat. 6,020,950).

With respect to claim 11, Shima as modified by Harpaz, lacks to show a cooling device for controlling the temperature of the reference frame. Shiraishi teaches a cooling device for cooling a member of an exposure apparatus (see figure 5). It would have been obvious to a skilled artisan at the time the invention was made to combine the teachings of Shiraishi, Shima and Harpaz to obtain the invention as specified in claim 11 of the present application. It would have been obvious to a skilled artisan to employ the cooling device as taught by Shiraishi to cool off the reference frame of Shima as modified by Harpaz for the purpose of preventing the reference member from being deformed by thermal expansion and thus improving the quality of the exposure device.

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Response to Arguments

7. Applicant's amendment filed 4/27/2005 have been entered. Applicant's arguments with respect to prior art rejections have been carefully reviewed but have been traversed in view of new ground of rejections as set forth above.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung Henry V. Nguyen whose telephone number is 571-272-2124. The examiner can normally be reached on Monday-Friday (First Friday off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Nguyen can be reached on 571-272-2258. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



**Hung Henry V Nguyen
Primary Examiner
Art Unit 2851**

hvn
6/30/05